BERA technical issues to raise with the LWG

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History: This message has been forwarded.

Kristine, Chip,

After some digging and a couple of phone calls, here is a list of the primary technical concerns to raise with LWG, in approximate order of importance, starting with the most important. One piece of good news regarding the wildlife risk calculations from Bob Dexter, see below.

1. **Use of individual chemical sediment quality values derived from the floating percentile model in the BERA.** Based on our review of the FPM to date, I suspect we have few concerns using the FPM to predict toxicity at stations without empirical toxicity data, one of the intended uses of the FPM. However, based on statements in the BERA warning against using the FPM SQVs independently, we have big concerns using individual SQVs to calculate hazard quotients for individual chemicals, or possibly mean quotients (we have some differences of opinion on the team whether or not using all the FPM SQVs, but only FPM SQVs in a mean quotient calculation is using the SQVs individually or collectively). The BERA warns that the FPM-derived SQVs must be used together to predict the toxicity of the contaminant mixture, they are not independent. EPA concurs with this statement, which leads us to the conclusion that the individual FPM-derived SQVs should not be used in the mean quotient calculations. Reliability calculations on the individual chemical SQVs confirmed this conclusion during the review of the first draft BERA. Reliability calculations already confirm the utility of the overall FPM in predicting toxicity (or absence thereof) with acceptable accuracy. Note: we may also have to not use individual sediment quality values from the logistic regression model if reliability calculations show the same issue as with the FPM results.
2. **Wildlife dietary exposure toxicity hazard calculations corrected ?** Talked with Bob Dexter this afternoon, he confirmed my read that changes have been made to this part of the BERA, and believes the wildlife calculations are likely acceptable. Bob has yet to review the fish dietary ingested dose section of the BERA, but the calculations should be the same as those for wildlife. If they are, this technical concern will have been mostly addressed, although there is a wet weight to dry weight conversion issue in the dietary calculations yet to be clearly resolved. This is a question an informal call to Windward could address once I know how to accurately phrase the question. I believe we brought up this issue in the comments on the first draft BERA, may merely be checking to see LWG made the requested clarification.
3. **Chemicals posing risks in localized areas , as opposed to posing sitewide risks .** The BERA still downplays chemicals that pose unacceptable risks in one or a relatively few areas of the entire site. This is the rationale used by LWG previously to largely eliminate transition zone water as posing unacceptable ecological risks, as we have poor spatial coverage of TZW throughout the site. As TZW is the matrix with the highest individual chemical hazard quotients in the entire BERA (several chemicals have HQs in excess of 1000 in one or more TZW samples), it is for the EPA RPM's to determine whether such ecological risks rise to a level requiring remediation. The BERA needs to more fully identify these chemicals and areas. Other such examples include TBT in several media in the vicinity of Swan Island Lagoon (shipyard), and mercury in Willamette Cove sediments. Most if not all of these calculations are in the BERA, but their presentation and discussion is lacking. It is not for LWG to downplay these risks. Present the results, and let the RPMs make the risk management decisions regarding the acceptability of the identified risks. This concern applies to most if not all media sampled at the site. Its largely an editorial and results presentation issue that will require some additional text, maybe some additional maps and tables in the BERA to address. Technically this is not complex, and for many media, is not a technical issue at all.
4. **Transition zone water results presentation** . Basically a sizable subset of issue 3 above. Magnitude of risks can be large (some HQs > 1000), but due to poor sampling coverage of the site (10 TZW monitoring location) interpreted by LWG not to be a sitewide problem. Its a data gap that likely will need to be addressed during remedial design.

5. **Exposure assessment for fish .** Thanks to a radiotelemetry study done by the Oregon Dept. of Fish and Wildlife concurrently with some of the Superfund sampling, we have site specific information on the movements, site use and home ranges of several of our target ecological receptor fish species. This is very rare at Superfund sites to have this information. We used it to define home ranges for fish species in the BERA problem formulation. While it appears the site specific home range was used, the BERA also performs risk calculations on fish using an assumption that fish use the entire site, thus diluting the magnitude of some of the identified risks when calculated on a smaller home range basis. Whether LWG used all of the site specific home range information where appropriate needs confirmed. May come down to whether or not we want to use the sitewide home range results in the BERA. Note that for several of our fish species (e.g. white sturgeon, northern pikeminnow) an assumption their home range is the entire site is warranted and provided where appropriate in the problem formulation.
6. **Refined screen review , COPEC selection**. I personally don't think this is much of an issue, others on the team don't agree with me. But if a chemical should be evaluated in the BERA but was improperly screened out in the refined screen (or the earlier screening level ecological risk assessment), it needs to be put back in the BERA and risks calculated. I can't there are many if any chemicals not carried through into the BERA, and certainly we haven't missed any major risk drivers. If I had to make a guess if something was missing, it would be in the Round 3b data, which was not available until after the screening level ecological risk was completed. But we need to be sure that nothing was screened out that should be included in the BERA. Will be some work, but nothing difficult technically.

Regarding schedule, issues 1 and 3 will take the most time to sort through. Issue 2 may have already been acceptably resolved, but would like to get confirmation from Jeremy Buck and/or Jennifer Peterson. Issues 4 and 5 are most likely editorial and presentation changes in nature, not so much technical. If no chemicals are missing in the refined screen, Issue 6 will no longer be a technical issue for the BERA. Some team members have raised questions about results presentation here.

Best regards,

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"For every problem, there is one solution which is simple, neat and wrong"
- H.L. Mencken